REMARKS

Applicants have amended their claims in order to further clarify the definition of various aspects of the present invention. Specifically, Applicants have amended claim 1 to recite that the easily oxidizable organic composition is carried on the carrier by impregnating a dry carrier with an easily oxidizable organic composition in liquid form, the carrier being a granulate prepared by granulating and subsequently drying, the easily oxidizable organic composition being carried on the carrier in an amount of 210-450 parts by weight. Note, e.g., the paragraph bridging pages 5 and 6 of Applicants' specification. Note also the paragraph bridging pages 7 and 8 of Applicants' specification. Claim 2 has been amended to recite that the easily oxidizable organic composition is carried on the carrier in an amount of 240-450 parts by weight, consistent with the description on page 8, lines 4 and 5, of Applicants' specification; and various of the dependent claims have been amended to set forth the word "claim", rather than "Claim". Moreover, Applicants have further amended claim 11 to recite "a" polyhydric alcohol, and "a" transition metal salt catalyst.

In addition, Applicants are adding new claims 13-19 to the application. Claims 13 and 14, each dependent on claim 1, respectively recites that the plate crystals are aggregated into corollaceous crystal structures, and recites that the granulate has an average particle size of 100 μm or more. Note, for example, pages 4 and 6 of Applicants' specification. Claim 15, dependent on claim 1, recites that the easily oxidizable organic composition is in a homogenous liquid form. See, for example, page 8, lines 12-23, of Applicants' specification.

New claim 16 recites a method for production of the oxygen-absorbing composition according to claim 1, including steps of granulating the calcium silicate

compound to prepare a granulate, subsequently drying the granulate to prepare a dried carrier, and impregnating the dry carrier with the easily oxidizable organic composition, in liquid form. Claims 17 and 18, each dependent on claim 16, respectively recites that the granulating is carried out by passing the carrier containing binders through punching plates or by rolling the carrier in a container; and recites that the impregnating is carried out by impregnating the dried carrier with the easily oxidizable organic composition, in homogenous liquid form. Note, for example, the paragraph bridging pages 5 and 6 of Applicants' specification; see also page 8, lines 12-23, of Applicants' specification. Claim 19 defines a method for production of the oxygen-absorbing composition according to claim 1, which includes granulating the carrier before drying, and then impregnating the dried carrier with an easily oxidizable organic composition in liquid form.

It is respectfully submitted that the newly added claims directed to the method should be considered on the merits in the above-identified application with the oxygen-absorbing composition, noting parallel recitations in the composition and method claims, and that the method claims are ultimately dependent on the composition claims.

The objection to claims 2-7 and 9-12 set forth in the first paragraph on page 2 of the Office Action mailed January 25, 2008, is moot, in light of amendment of the claims to begin the word "claim" with a lower case letter.

It is respectfully submitted that the rejection of claim 11 under the second paragraph of 35 USC 112, as being indefinite, is moot, in light of amendments to claim 11 to recite "a" polyhydric alcohol and "a" transition metal salt catalyst. In view of use of the word "a", rather than "the", there is no need for antecedent basis for the recitations.

Applicants respectfully submit that all of the claims presented for consideration by the Examiner patentably distinguish over the teachings of the references applied by the Examiner in rejecting claims in the Office Action mailed January 25, 2008, that is, the teachings of the U.S. patents to Ueno, et al., No. 5,128,060, to Mizutani, et al., No. 4,226,636, and to Sugihara, et al., No. 5,102,673, under the provisions of 35 USC 103.

It is respectfully submitted that the teachings of the applied references would have neither disclosed nor would have suggested such an oxygen-absorbing composition as in the present claims, having the carrier and easily oxidizable organic composition carried thereon by impregnating a dried carrier with an easily oxidizable organic composition in liquid form, and wherein the carrier is a granulate prepared by granulating and subsequently drying. See claim 1.

Furthermore, it is respectfully submitted that the applied references would have neither disclosed nor would have suggested such an oxygen-absorbing composition as in the present claims, having features as discussed previously in connection with claim 1, and, moreover, wherein the carrier is a granulate prepared by granulating a mixture comprising specific amounts of the calcium silicate compound, activated carbon and a binder. See claim 4.

Moreover, it is respectfully submitted that the teachings of the applied references would have neither disclosed nor would have suggested such an oxygen-absorbing composition as in the present claims, having features as discussed previously in connection with claim 1, and, in addition, having features as in the composition claims ultimately dependent on claim 1, including (but not limited to) wherein the easily oxidizable organic composition is carried on a carrier in the amount as set forth in claim 2; and/or wherein the carrier is a granulate prepared by

granulating a mixture comprising 100 parts by weight of the calcium silicate compound and 0.01-20 parts by weight of binder (see claim 3); and/or specific materials for the binder and for the easily oxidizable organic compound as set forth in claims 5 and 8, respectively; and/or wherein the composition includes an additive for putting the easily oxidizable organic compound in chemically easily oxidizable condition and/or water (see claim 7), in particular, wherein the additive is a material as in claim 9; and/or wherein n of the formula for the calcium silicate compound is from 1.0-1.5 (see claim 6); and/or makeup of the easily oxidizable organic composition as in claims 10 and 11; and/or wherein the plate crystals are aggregated into corollaceous crystal structures (see claim 13); and/or wherein the granulate has an average particle size of 100 μm or more (see claim 14); and/or wherein the easily oxidizable organic composition, carried on the carrier, is in a homogenous liquid form (see claim 15).

Furthermore, it is respectfully submitted that the teachings of the applied references would have neither disclosed nor would have suggested an oxygen-absorbing package as in the present claims, which includes the oxygen-absorbing composition as in claim 1 packed by a gas-permeable packaging material. See claim 12.

In addition, it is respectfully submitted that the teachings of the applied references would have neither disclosed nor would have suggested such a method for production of the oxygen-absorbing composition of claim 1, as in the present claims, which method includes granulating the calcium silicate compound, subsequently drying the granulate to prepare a dried carrier, and impregnating the dried carrier with the easily oxidizable organic composition, in liquid form (see claim 16), particularly wherein the granulating is carried out by passing the carrier

containing binders through punching plates or by rolling the carrier in a container (see claim 17), or wherein the impregnating is carried out by impregnating the dried carrier with the easily oxidizable organic composition, in homogenous liquid form (see claim 18); or such a method for production of the oxygen-absorbing composition according to claim 1, which method includes granulating which granulates the carrier before drying, and then impregnating which impregnates the dried carrier with an easily oxidizable organic composition in liquid form.

As will be discussed further infra, and as established by the presently submitted Declaration Under 37 CFR 1.132 also discussed infra, by utilizing a carrier which is a granulate prepared by granulating and subsequently drying, and by impregnating the dried carrier with an easily oxidizable organic composition in liquid form, especially in homogeneous liquid form, advantages of the present invention are achieved; specifically, a superior reduction of the size of an oxygen absorbing package, i.e., superior compactness of the package, and achieving good absorbing properties, are achieved.

The present invention is directed to an oxygen-absorbing composition and method of production thereof, the composition containing an organic compound as a principal ingredient for removing oxygen from the environment containing such composition.

As described in Applicants' specification, as one of the techniques for preserving foods and medicines, known is a preservation method using an oxygen-absorbing agent. Generally, the oxygen-absorbing agent is made into an oxygen-absorbing package by packing an easily oxidizable composition into small bags made of a gas-permeable material, the package being placed in a package with, e.g., foods and/or medicines to be preserved. Organic oxygen-absorbing agents

have been proposed, as described in the paragraph bridging pages 2 and 3 of Applicants' specification; in particular, liquid organic oxygen-absorbing agents carried on inorganic carriers have been proposed. Problems with such inorganic carriers are described in the paragraph bridging pages 1 and 2, the two full paragraphs on page 2, and the paragraph bridging pages 2 and 3, of Applicants' specification.

It is still desired to provide an oxygen-absorbing composition containing an organic compound as an easily oxidizable material, which can carry a large amount of the organic compound, which is not detected by a metal detector, and which is excellent in oxygen-absorbing ability per unit volume. By providing a material excellent in oxygen-absorbing ability per unit volume, the amount of packaging material to be used can be reduced.

As a result of intensive studies by Applicants, the Applicants have found that a carrier containing a calcium silicate compound as recited in claim 1 (i.e., the carrier being a granulate prepared by granulating and subsequently drying) can carry a large amount of the easily oxidizable organic composition serving as an oxygen-absorbing composition (carried on the carrier by impregnating a dried carrier with the organic composition in liquid form), and is excellent in total oxygen absorption per unit volume, oxygen-absorbing speed and handling ability.

In particular, Applicants have found that by utilizing a dried calcium silicate granulate carrier prepared by granulating and subsequently drying, with the easily oxidizable organic composition in liquid form being impregnated in the dried calcium silicate carrier, superior reduction of the size of the oxygen absorbing package, that is, superior compactness of the package, is achieved.

As for the unexpectedly better results of superior compactness of the

package, achieved by the present invention, attention is respectfully directed to the enclosed Declaration Under 37 CFR 1.132. Note particularly the experiments described therein, in Item 4 on pages 2-5 of this Declaration. Note also the results of the Declaration, shown by photographs in Fig. A on page 5 of the Declaration. As described under the heading "Conclusion" on page 6 of the Declaration, from both E2-1 and E3-1, it can be seen that superior compactness is not achieved by treating a carrier with an oxidizable composition which is not homogeneously dissolved; and from both E3-1 and E3-2, superior compactness is not achieved by treating each of the silica gel carrier and a calcium silicate carrier before granulating. Moreover, from the comparison of E3-2 with E3-3, superior compactness is achieved by impregnating "the dried calcium silicate carrier" as in the present invention, with an oxidizable composition which is homogenously dissolved, that is, with the oxidizable composition of the present invention.

Thus, by the combination of using a carrier which is a granulate prepared by granulating and subsequently drying, and by utilizing an easily oxidizable organic composition carried on the carrier by impregnating a dried carrier with an easily oxidizable organic composition in liquid form, in particular, wherein the easily oxidizable organic composition is in a homogenous liquid form, unexpectedly better results are achieved in providing good oxygen removal in a compact structure.

Ueno, et al. discloses an oxygen absorbent comprising ascorbic acid and/or salt thereof, an alkaline compound, a reaction accelerator and silica gel. See column 2, lines 10-12. As for the alkaline compound, note column 2, lines 46-51. As for the reaction accelerator, note column 3, lines 4-6. This patent discloses that the silica gel may be a liquid phase producing silica gel which is prepared, for example, by decomposing a sodium silicate with an acid in a liquid phase, or a vapor

phase producing silica gel. This patent discloses that though there are silica gels containing micropores and those having substantially no micropore, the later is more preferable. Note column 3, lines 45-55.

It is emphasized that Ueno, et al. discloses use of a silica gel carrier, preferably having no micropores. It is respectfully submitted that this reference would have neither taught nor would have suggested such composition or method as in the present claims, including wherein the carrier is a granulate prepared by granulating and subsequently drying, or wherein the easily oxidizable organic composition is carried on the carrier by impregnating a dried carrier with an easily oxidizable organic composition in liquid form, or unexpectedly better advantages achieved thereby.

It is respectfully submitted that the additional teachings of Mizutani, et al. would not have rectified the deficiencies of Ueno, et al., such that the presently claimed invention as a whole would have been obvious to one of ordinary skill in the art. Mizutani, et al. discloses a process for producing calcium silicate, and a calcium silicate-gypsum composition having a petal-like structure which can absorb a very large amount of oils. The calcium silicate is disclosed most generally in column 1, lines 40-48. See also column 2, lines 6-16 of Mizutani, et al., disclosing a process for producing the calcium silicate. Note also column 2, lines 48-51; and column 3, lines 23-25.

Even assuming, arguendo, that the teachings of Ueno, et al. and of Mizutani, et al. were properly combinable, such combined teachings would have neither disclosed nor would have suggested the presently claimed composition or method, including combination of features providing unexpectedly better results as discussed previously, i.e., wherein the carrier is a granulate prepared by granulating and

subsequently drying, and wherein the easily oxidizable organic composition carried on the carrier is produced by impregnating a dried carrier with the easily oxidizable organic composition in liquid form.

It is respectfully submitted that the combined teachings of Sugihara, et al., Mizutani, et al. and Ueno, et al. would have neither taught nor would have suggested the presently claimed composition and method.

Sugihara, et al. discloses an oxygen absorbent comprising boron, or a reducing boron compound, an alkaline substance and a carrier. See column 2, lines 53-55. Note also column 3, lines 10-18, and column 4, lines 51-57. This patent discloses that the carriers may be, for example, activated carbon, zeolite, pearlite, and calcium silicate, among other materials, each in the form of powders or granules; and that particularly preferably used is activated carbon. Note column 3, lines 52-59.

Ueno, et al. and Mizutani, et al. have been previously discussed.

Even assuming, arguendo, that the teachings of Mizutani, et al. and of Ueno, et al. were properly combinable with the teachings of Sugihara, et al., such combined teachings would have neither disclosed nor would have suggested the presently claimed subject matter, including, the composition wherein the carrier is a granulate prepared by granulating and subsequently drying, and with the easily oxidizable organic composition carried on the carrier by impregnating a dried carrier with an easily oxidizable organic composition in liquid form; and/or the method which includes granulating the calcium silicate compound to prepare a granulate, subsequently drying the granulate to prepare a dried carrier, and impregnating the dried carrier with the easily oxidizable organic composition, in liquid form, or wherein the method includes the granulating which granulates the carrier before drying, and

then the impregnating which impregnates the dried carrier with an easily oxidizable organic composition in liquid form.

It is respectfully submitted that the combined teachings of the applied references, either Ueno, et al. and Mizutani, et al., or Sugihara, et al., Ueno, et al. and Mizutani, et al., would have neither disclosed nor would have suggested the unexpectedly better results achieved by the present invention, in compact size while achieving good oxygen absorption, as shown by the enclosed Declaration.

In view of the foregoing comments and amendments, reconsideration and allowance of all claims presently pending in the above-identified application are respectfully requested.

To the extent necessary, Applicants hereby petition for an extension of time under 37 CFR 1.136. Kindly charge any shortage of fees due in connection with the filing of this paper, including any extension of time fees, to the Deposit Account of Antonelli, Terry, Stout & Kraus, LLP, Account No. 01-2135 (case 396.44985X00), and please credit any overpayments to such Deposit Account.

Respectfully submitted,

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Enclosure: Declaration Under 37 CFR 1.132 (6 pp.)

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